UNIVERSITY OF PENNSYLVANIA

COST OF MONEY TO PUBLIC UTILITIES IN UNITED STATES 1914-1922

FRANK PARKER

A Thesis

IN FINANCE

Presented to the Faculty of the Graduate School in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy

PHILADELPHIA
1926

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WITH strict regulation of rates of service, rates of return, and various other factors in the investment bargain, utilities have had to finance their operations on close margins. Generally speaking, smaller margins require greater attention to the costs of financing. Particularly during the unsettled conditions of the past decade the cost of money to utility financiers has been of great importance. This study, it is hoped, will contribute to the understanding of the fluctuations in the cost of money to utilities, when needed funds are raised by bond, note, or stock issues.

Cost of Money Defined

The cost of financing to public utility companies is composed of two distinct elements, (1) the mechanical cost of financing, including therein all costs of preparing, printing, engraving, registering, and distributing security issues, whether stock, bonds, or notes, as well as the cost of recording mortgages and other necessary papers, trustees' fees and expenses, and so forth; and (2) the cost of obtaining money realized from the sale of such securities, whether such cost be incurred in the form of direct expenses paid by the company—where securities are sold direct by the company to the investor — or as sums paid to bankers for their services in effecting the sale of the company's securities.

The first group of expenses is capable of exact determination by examining the records of the particular utility. Inasmuch as it constitutes a relatively small part of the total cost of financing, seldom exceeding 1% of the total property investment, and since the ascertainment of the exact amounts expended on the mechanical cost of financing presents unusual difficulties, no extended consideration will be given here to this phase of the cost of financing. Provision is made in substantially all of the classifications of accounts promulgated by the various public service commissions throughout the United States for including in the capital accounts the exact costs as recorded on the books of the public utility company, incurred in the printing, engraving, registering, and distributing of securities.

The cost of obtaining money, or brokerage, as it is sometimes termed, must not be confused with discount, which represents the difference between the par value of securities and the price paid therefor by individual investors. This difference is an adjustment of the interest rate which, when averaged over the life of the bond—in conjunction with the interest periodically paid by the company — gives the investors an average yield approximating the current yield for securities of the character in question. As distinguished from discount, the cost of obtaining money represents the difference between the price at which securities are sold to the banker by the utility and the price at which the banker in turn sells them to the investing public. It includes a reasonable compensation for the banker's services in marketing the securities and forwarding the funds

Table I. Cost of Obtaining Money to Public Utilities in the United States Through Sale of Bonds, Notes, and Stock, January, 1914—December, 1922, Inclusive

Year	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sales Price C (Dollars)	Bankers' Commission D (Dollars)	Percentage Cost of Money D/B
Bonds					
1914	67,570,000	62,176,518	65,676,101	3,499,583	5.628
1915	80,765,000	73,946,029	78,306,090	4,360,061	5.896
1916	77,565,900	70,243,895	74,591,317	4,347,422	6.189
1917	63,530,000	58,995,509	61,899,215	2,903,706	4.922
1918	39,150,000	34,824,647	36,933,512	2,108,865	6.056
Total 1914-1918	328,580,900	300,186,598	317,406,235	17,219,637	5.736
1919	130,496,000	122,082,433	127,909,428	5,826,995	4.773
1920	152,566,000	136,429,016	145,125,260	8,696,244	6.374
1921	300,822,100	272,866,857	289,173,467	16,306,610	5.976
1922	220,715,800	200,448,927	213,361,339	12,912,412	6.442
Total 1919-1922	804,599,900	731,827,233	775,569,494	43,742,261	5.977
Total 1914-1922	1,133,180,800	1,032,013,831	1,092,975,729	60,961,898	5.907
Notes					
1914	19,400,000	18,604,950	19,234,650	629,700	3.385
1915	15,090,500	14,442,616	14,928,491	485,875	3.364
1916	17,731,000	17,342,244	17,677,857	335,613	1.935
1917	33,902,600	32,131,596	33,566,857	1,435,261	4.467
1918	75,104,800	70,677,968	73,464,314	2,786,346	3.942
Total 1914-1918	161,228,900	153,199,374	158,872,169	5,672,795	3.703
1919	134,550,000	128,691,500	132,887,265	4,195,765	3.260
1920	85,575,500	80,786,568	83,673,450	2,886,882	3.573
1921	41,450,000	40,329,820	41,394,660	1,064,840	2.640
1922	3,250,000	3,068,500	3,183,250	114,750	3.740
Total 1919-1922	264,825,500	252,876,388	261,138,625	8,262,237	3.267
Total 1914-1922	426,054,400	406,075,762	420,010,794	13,935,032	3.432

yielded to the utility; the services and expenses of examination, negotiation, advertising, and selling through all of the various stages until the sale to the final investor is effected.

Factors Affecting the Cost of Money

Considerable study has already been given to the relative advantages of bond, note, and stock financing in different periods of the business cycle. It is also well known that the costs of borrowing from creditors in return for bonds or notes and of raising funds by stock issues vary markedly from time to time. This is the background of the present study and it may be appropriate to mention briefly the outstanding factors that affect the cost of obtaining money; namely, (1) the existing conditions in the money market, (2) the type of security issued, (3) the general reputation of the type of enterprise seeking the capital, (4) the location of the enterprise, (5) the extent to which the territory served has been developed, (6) the present earning power of the property, (7) the degree to which speculative risks are involved, and (8) the character and extent of local and state regulation and control to which the utility is subjected.

No extended explanation need be given of most of the foregoing factors. Professor W. C. Mitchell has made a careful analysis[1] of fluctuations in the money and investment markets and in the salability of bonds and stocks during the various phases of the business cycle. For the present purpose one needs to

[1] Mitchell, W. C., *Business Cycles.*

Table I *(Continued)*. Cost of Obtaining Money to Public Utilities in the United States Through Sale of Bonds, Notes, and Stock

Year	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sales Price C (Dollars)	Bankers' Commission D (Dollars)	Percentage Cost of Money D/B
Stock					
1914	3,104,500	2,744,500	2,927,635	183,135	6.673
1915 There were no issues of stock made during 1915 for which complete information was available.					
1916	250,000	250,000	257,500	7,500	3.000
1917	2,000,000	1,830,000	1,995,000	165,000	9.016
1918	345,000	345,000	362,250	17,250	5.000
Total 1914-1918	5,699,500	5,169,500	5,542,385	372,885	7.213
1919	7,535,000	6,480,400	6,854,650	374,250	5.775
1920	2,395,000	1,345,500	1,555,000	209,500	15.570
1921	12,820,000	12,145,000	12,869,000	724,000	5.961
1922	20,168,600	17,675,995	19,629,806	1,953,811	11.053
Total 1919-1922	42,918,600	37,646,895	40,908,456	3,261,561	8.664
Total 1914-1922	48,618,100	42,816,395	46,450,841	3,634,446	8.488
Grand Total	1,607,853,300	1,480,905,988	1,559,437,364	78,531,376	5.303

consider only two of the foregoing factors; namely, the general reputation of the type of enterprise seeking capital, and the effect of local and state regulation on the utility's financial standing.

The general reputation of the type of enterprise seeking capital plays a significant rôle in determining the cost of obtaining money. By type of enterprise is meant public utilities as distinguished from industrial enterprises; steam railways likewise are excluded from the present analysis although recognized as public utilities. From 1900 to 1920 the investment standing of many public utility securities progressively declined in the estimation of investors, and this decline in popularity accounted for the increasing cost of money to individual public utility enterprises. The lack of a carefully conceived policy of public relations, the inability of utility managers to foresee an unprecedented growth in the industry, and hence their failure to make adequate provision for extensions and improvements to meet the demand for their services, the difficulties of adjusting their rates and service to meet the stringent regulations of the public service commissions, and the limitations to which a fixed rate of return subjected all public utilities during the period of the pronounced rise in prices from 1914 to 1920, made serious encroachments on profits and resulted in turning the interest of investors toward other fields. Moreover, the greater effort and larger expenditures necessary to sell public utility securities caused an increase in the cost of obtaining money in the post-war period as contrasted with pre-war days. This increased difficulty in selling public utility securities was due partly to the decrease in accumulated savings following the destruction and waste of capital during the World War, and also to the fact that the surtaxes under our income tax laws convinced the large investor of the economy of buying securities that were tax free. As a consequence, the average sales per capita of all classes of securities, except municipals and government securities, declined substantially from 1918 to 1921. Figures based upon the records of a large bondhouse with a

Table II. Cost of Obtaining Money to Electric Light and Power Companies in the United States Through Sale of Bonds, Notes, and Stock January, 1914—December, 1922, Inclusive

Year	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sales Price C (Dollars)	Bankers' Commission D (Dollars)	Percentage Cost of Money D/B
Bonds					
1914	18,119,000	15,956,060	17,126,561	1,170,501	7.336
1915	32,341,000	29,386,250	31,080,770	1,694,520	5.766
1916	46,771,500	41,974,972	44,849,073	2,874,101	6.847
1917	53,255,000	49,651,210	52,048,415	2,397,205	4.828
1918	31,916,000	28,081,747	29,832,282	1,750,535	6.234
Total 1914-1918	182,402,500	165,050,239	174,937,101	9,886,862	5.990
1919	83,799,000	76,957,110	81,163,510	4,206,400	5.466
1920	127,566,000	113,804,016	121,375,260	7,571,244	6.653
1921	188,672,100	171,405,327	182,026,006	10,620,679	6.196
1922	117,555,800	106,453,442	114,241,699	7,788,257	7.316
Total 1919-1922	517,592,900	468,619,895	498,806,475	30,186,580	6.442
Total 1914-1922	699,995,400	633,670,134	673,743,576	40,073,442	6.324
Notes					
1914	7,000,000	6,791,450	6,975,000	183,550	2.703
1915	13,026,500	12,481,842	12,894,876	413,034	3.309
1916	400,000	355,770	400,000	44,230	12.432
1917	21,613,600	20,348,648	21,358,524	1,009,876	4.963
1918	27,929,800	25,786,710	27,093,876	1,307,166	5.069
Total 1914-1918	69,969,900	65,764,420	68,722,276	2,957,856	4.498
1919	13,650,000	12,968,000	13,444,875	476,875	3.677
1920	38,100,500	35,376,813	37,160,735	1,783,922	5.043
1921	2,850,000	2,631,000	2,782,500	151,500	5.758
1922	750,000	693,500	733,250	39,750	5.732
Total 1919-1922	55,350,500	51,669,313	54,121,360	2,452,047	4.746
Total 1914-1922	125,320,400	117,433,733	122,843,636	5,409,903	4.607

nation-wide organization and clientele show that as of 1921 the average sale per capita had dropped from $23,000 to $8,000; in order to sell 24 bonds in denominations of $1,000, it was necessary to sell to three people instead of one. This decrease in the amount of sales per capita meant that to sell a given amount of securities the banker was obliged to see a great many more prospects, to spend more time, and to incur greater expenses in advertising and circularizing, and this increased cost of doing business to the banker partially explains the increased cost of money to public utility enterprises.

Speculative risk as an item affecting the cost of obtaining money to public utilities is closely associated with local or state regulation and control. Ordinarily, a public utility enterprise established in a community giving reasonable promise of continuous growth and administered by officials possessing technical knowledge and operating experience, is much more fortunately situated with reference to making profit than an industrial or mercantile enterprise doing business in the same locality. Comparative freedom from competition, and the assurance of such freedom continuing as long as commission regulation lasts, coupled with the rendition of services that are today deemed indispensable to the community, gives a degree of safety to the bonds, notes, and stocks of utilities that the securities of the usual private enterprise lack. Exception

Table II *(Continued)*. Cost of Obtaining Money to Electric Light and Power Companies in the United States Through Sale of Bonds, Notes, and Stock

Year	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sales Price C (Dollars)	Bankers' Commission D (Dollars)	Percentage Cost of Money D/B
Stock					
1914	850,000	850,000	875,500	25,500	3.000
1915, 1916 — There were no issues of stock made during these years for which complete information was available.					
1917	1,500,000	1,395,000	1,515,000	120,000	8.602
1918	345,000	345,000	362,250	17,250	5.000
Total 1914-1918	2,695,000	2,590,000	2,752,750	162,750	6.284
1919	6,500,000	5,637,500	5,950,000	312,500	5.543
1920	2,100,000	1,080,000	1,260,000	180,000	16.667
1921	12,200,000	11,567,000	12,249,000	682,000	5.896
1922	18,968,600	16,715,995	18,585,806	1,869,811	11.186
Total 1919-1922	39,768,600	35,000,495	38,044,806	3,044,311	8.698
Total 1914-1922	42,463,600	37,590,495	40,797,556	3,207,061	8.532

should probably be made of utilities operating under short-term franchises.

Yet legislative and administrative control of utilities through state statutes and state public service commissions also entails risks to the investor that are reflected in the cost of obtaining capital. Uncertainties as to safety of principal and income incident to commission appraisal of the fair value of the property and changes in policy in fixing the rate of return inevitably add to the cost of obtaining money. Reduction of overhead allowances to a bare minimum, flat refusal to recognize promotion fees and expenses as legitimate expenditures in the construction and development of a property, failure to grant reasonable allowance for development cost, going concern value, and working capital—not to mention, perhaps, unduly severe paring of the value assigned to the physical property—all tend to reduce the rate base upon which the investor's original contribution to the utility was grounded and thus make it impossible to attract additional capital except at an appreciably higher cost.

Relation between Rate of Return and Cost of Money

Most of the influences exerted by regulatory bodies on the cost of money can be focused in the rate of return. Clearly a direct correlation exists between a reasonable return—not merely a nonconfiscatory return which is largely a legal matter — and the attraction of capital into the utility field. If the rate of return is not high enough to compensate efficient management and labor as well as to compensate the contributors of capital funds, while keeping the property unimpaired, obviously, then, the service, earnings, and credit position of the utility will suffer, while the cost of obtaining funds for maintenance and expansion of service will proportionately rise. Of course, the rate of return does not fix the cost of obtaining money; it merely determines the conditions under which money can be acquired. But in so far as the rate of return functions as a provider of earnings, money will cost more or less as the conditions created by the rate of return destroy or encourage the investors' confidence.

Table III. Cost of Obtaining Money to Electric Railways in the United States Through Sale of Bonds, Notes, and Stock January, 1914—December, 1922, Inclusive

Year	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sales Price C (Dollars)	Bankers' Commission D (Dollars)	Percentage Cost of Money D/B
Bonds					
1914	34,876,000	32,435,208	34,019,540	1,584,332	4.885
1915	47,009,000	43,308,059	45,856,770	2,548,711	5.885
1916	19,720,400	18,106,343	18,806,171	699,828	3.865
1917	5,770,000	5,263,049	5,553,550	290,501	5.520
1918	4,731,000	4,447,502	4,650,485	202,983	4.564
Total 1914-1918	112,106,400	103,560,161	108,886,516	5,326,355	5.143
1919	3,217,000	2,904,523	3,071,418	166,895	5.746
1920 There were no issues of bonds made during 1920 for which complete information was available.					
1921	20,200,000	17,634,980	19,115,540	1,480,560	8.396
1922	33,223,000	29,726,090	31,365,500	1,639,410	5.515
Total 1919-1922	56,640,000	50,265,593	53,552,458	3,286,865	6.539
Total 1914-1922	168,746,400	153,825,754	162,438,974	8,613,220	5.599
Notes					
1914	8,900,000	8,380,000	8,772,150	392,150	4.680
1915	1,914,000	1,821,274	1,885,115	63,841	3.505
1916	7,831,000	7,688,974	7,815,357	126,383	1.644
1917	11,889,000	11,404,948	11,815,693	410,745	3.601
1918	42,400,000	40,357,000	41,696,500	1,339,500	3.319
Total 1914-1918	72,934,000	69,652,196	71,984,815	2,332,619	3.349
1919	7,500,000	7,033,000	7,289,890	256,890	3.653
1920	7,125,000	6,660,000	6,981,250	321,250	4.824
1921	3,400,000	3,113,750	3,295,910	182,160	5.850
1922	2,500,000	2,375,000	2,450,000	75,000	3.158
Total 1919-1922	20,525,000	19,181,750	20,017,050	835,300	4.355
Total 1914-1922	93,459,000	88,833,946	92,001,865	3,167,919	3.566

Scope of Study

The collection of data on the cost of money is limited to public sources because the prices received by a utility from bankers for marketed securities are usually confidential. The task requires specific information on the following points: the type of security as well as the amount authorized to be sold to the public; the price received by the public utility company from the banker (or the public, where the security is preferred stock being sold directly to the public); and the price at which the securities are ultimately offered to the public. With the exception of the data relating to the price received by the company from the bankers, little difficulty was experienced in ascertaining all of the foregoing information, where the public service commission laws make this information a matter of public record. Where the data relating to the type of security, amount authorized, and the offering price to the public were not set forth in detail in the reports of the commissions, two other reliable sources of information were resorted to, namely, *Public Utilities Reports Annotated* and the *Commercial and Financial Chronicle*. The exact price received by the utility from the bankers can only be obtained from one of three sources: the records of the public utility itself, the bankers engaged in marketing the securities, and the records of such public service commissions as have been given plenary jurisdiction over the issuance

Table III *(Continued)*. Cost of Obtaining Money to Electric Railways in the United States Through Sale of Bonds, Notes, and Stock

Year	Par Value A	Price Received by Company from Bankers B	Bankers' Sales Price C	Bankers' Commission D	Percentage Cost of Money D/B
	(Dollars)	*(Dollars)*	*(Dollars)*	*(Dollars)*	
Stock					
1914 1915 There were no issues of stock made during these years for which complete information was available.					
1916	250,000	250,000	257,500	7,500	3.000
1917 1918 There were no issues of stock made during these years for which complete information was available.					
Total 1914-1918	250,000	250,000	257,500	7,500	3.000
1919	500,000	340,000	375,000	35,000	10.294
1920 1921 1922 There were no issues of stock made during these years for which complete information was available.					
Total 1919-1922	500,000	340,000	375,000	35,000	10.294
Total 1914-1922	750,000	590,000	632,500	42,500	7.203

of public utility securities. To have accepted only the scattered data concerning the exact price received by the utility from the banker, furnished either by the utility or by the banker, would have so limited the field of this investigation as to impeach the adequacy of the data upon which conclusions were based. To avoid this difficulty it was necessary to resort to the records of those commissions which are given authority by state statutes to fix the minimum price which the sale of the securities should net the utility, or which are empowered to require the utility to file with the commission, after the securities have been marketed, a statement showing the price which the utility actually received from the bankers.[2]

While the limitations imposed by such gaps in statistical data are appreciated, it is believed that the study of 550 cases, aggregating over $1,600,000,000 par value of securities, gives a substantial foundation upon which to base some general conclusions.

Method of Study

Reference to the accompanying tables discloses the fact that the cost of money has been predicated on the net amount of cash received by the public utility from the sale of its securities. This process of calculation represents the only one which accurately depicts the cost of obtaining money to a public utility enterprise. Any computation which bases the cost of money on the par value of securities floated or on the number of units of each type of security issued, ignores the fact that the amount of funds received by the utility to pro-

[2] The calculation of the cost of money based on the minimum price fixed by a public service commission gives accurate results. The experience of the commissions shows that it is the universal practice to set the minimum price only after a thorough investigation into the preliminary negotiations of the utility and the banker, and the state of the investment market. In many cases the utility has arranged for the sale of the securities with the banker at a fixed price before the application for authority to issue is filed with the commission. Frequently, at the hearing before the commission, the utility is required to present, as part of its evidence, the form of contract proposed to be entered into between itself and the banker. This tentative contract sets forth the price at which the banker is willing to take the issue, and the commission then fixes the contract price as the minimum at which the securities may be sold.

Table IV. Cost of Obtaining Money to Gas Companies in the United States Through Sale of Bonds, Notes, and Stock, January, 1914—December, 1922, Inclusive

Year	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sales Price C (Dollars)	Bankers' Commission D (Dollars)	Percentage Cost of Money D/B
Bonds					
1914	1,575,000	1,496,250	1,575,000	78,750	5.263
1915	1,415,000	1,251,720	1,368,550	116,830	9.334
1916	10,274,000	9,442,580	10,136,073	693,493	7.344
1917	2,500,000	2,337,500	2,437,500	100,000	4.278
1918	2,503,000	2,295,398	2,450,745	155,347	6.768
Total 1914-1918	18,267,000	16,823,448	17,967,868	1,144,420	6.803
1919	16,800,000	16,162,000	16,780,000	618,000	3.824
1920 There were no issues of bonds made during 1920 for which complete information was available.					
1921	10,150,000	9,506,750	9,942,921	436,171	4.588
1922	41,772,000	38,436,820	41,029,140	2,592,320	6.744
Total 1919-1922	68,722,000	64,105,570	67,752,061	3,646,491	5.688
Total 1914-1922	86,989,000	80,929,018	85,719,929	4,790,911	5.920
Notes					
1914 There were no issues of notes made during 1914 for which complete information was available.					
1915	150,000	139,500	148,500	9,000	6.452
1916, 1917 There were no issues of notes made during these years for which complete information was available.					
1918	2,225,000	2,108,633	2,174,938	66,305	3.144
Total 1914-1918	2,375,000	2,248,133	2,323,438	75,305	3.350
1919	900,000	828,000	865,000	37,000	4.469
1920	11,400,000	10,938,750	11,241,750	303,000	2.770
1921	35,200,000	34,585,070	35,316,250	731,180	2.114
1922 There were no issues of notes made during 1922 for which complete information was available.					
Total 1919-1922	47,500,000	46,351,820	47,423,000	1,071,180	2.311
Total 1914-1922	49,875,000	48,599,953	49,746,438	1,146,485	2.359

vide extensions to plant and to purchase equipment is to be measured by the actual cash received. When the calculation of the cost of obtaining money is founded upon the net cash received by the utility, it furnishes an accurate basis for demonstrating how much should be included in the valuation of a public utility property for this particular item. The justice of giving due consideration to the actual cost of money to a public utility in determining the fair value of the utility's property is a matter which will be considered later.

Before proceeding to examine the figures in detail, it may be well to state some general facts pertinent to the tables. In every case the years appearing in the tables represent calendar years. It will be observed that there are disconcertingly wide variations in the total amount of data available for different types of utilities. The gaps in the statistical tables, however, are to be accounted for by the lack of original source data. The mere absence of statistical data concerning bond or stock issues of a certain type of utility during a particular year does not necessarily mean that that type of utility did not

Table IV *(Continued)*. Cost of Obtaining Money to Gas Companies in the United States Through Sale of Bonds, Notes, and Stock

Year	Par Value A	Price Received by Company from Bankers B	Bankers' Sales Price C	Bankers' Commission D	Percentage Cost of Money $\frac{D}{B}$
Stock	*(Dollars)*	*(Dollars)*	*(Dollars)*	*(Dollars)*	
1914	254,500	254,500	262,135	7,635	3.000
1915 } There were no issues of stock made during these years for which complete information was available. 1916					
1917	500,000	435,000	480,000	45,000	10.345
1918 There were no issues of stock made during 1918 for which complete information was available.					
Total 1914-1918	754,500	689,500	742,135	52,635	7.634
1919 } There were no issues of stock made during these years for which complete information was available. 1920					
1921	400,000	380,000	400,000	20,000	5.263
1922 There were no issues of stock made during 1922 for which complete information was available.					
Total 1919-1922	400,000	380,000	400,000	20,000	5.263
Total 1914-1922	1,154,500	1,069,500	1,142,135	72,635	6.791

float securities in that year; it may signify that complete information either as to the amount offered or as to the price received by the company from the bankers or as to the banker's sales price, was not available, and, consequently, that no accurate calculation could be made.

No common stock is included in the figures under the general head "Stock" in any of the statistical tables appearing subsequently. This may be partially explained by the common stipulation of state statutes requiring that stock be first offered to the stockholders of record before it can be offered to the general public, thus depriving the investigator of data essential to a calculation of the cost of money. The absence of common stock in the calculation is also ascribable to the relative infrequency with which this type of stock is offered to the investing public. Rising operating costs and a tendency toward increasing stringency in commission regulation have frequently reacted injuriously on public utilities throughout the United States, with the result that utilities have often been compelled to resort to senior financing, lacking the requisite credit status to sponsor flotations of stock. In a measure, therefore, the absence of common stock tends to reflect the rather unenviable credit position of utilities during the period under consideration.

The years for which data were obtained are 1914 to 1922, inclusive. During this period the investment market went through practically a complete cycle. The picture is therefore as complete as limitations of the data permit. Adequate material for bringing this investigation up to date was not available at the time of writing.

Cost of Money to All Types of Public Utilities

For a convenient summary, Table I shows the cost of bond, note, and stock money to all types of utilities by years from 1914 to 1922, inclusive. This table substantiates what is generally

Table V. Cost of Obtaining Money to Telephone Companies in the United States Through Sale of Bonds, Notes, and Stock, January, 1914—December, 1922, Inclusive

Year	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sales Price C (Dollars)	Bankers' Commission D (Dollars)	Percentage Cost of Money D/B
Bonds					
1914	13,000,000	12,289,000	12,955,000	666,000	5.419
1915, 1916, 1917, 1918 — There were no issues of bonds made during these years for which complete information was available.					
Total 1914-1918	13,000,000	12,289,000	12,955,000	666,000	5.419
1919	26,100,000	25,512,000	26,317,000	805,000	3.155
1920	25,000,000	22,625,000	23,750,000	1,125,000	4.972
1921	50,500,000	46,975,000	49,000,000	2,025,000	4.311
1922	25,165,000	22,907,575	23,665,000	757,425	3.306
Total 1919-1922	126,765,000	118,019,575	122,732,000	4,712,425	3.993
Total 1914-1922	139,765,000	130,308,575	135,687,000	5,378,425	4.127
Notes					
1914	2,500,000	2,453,500	2,487,500	34,000	1.38
1915 — There were no issues of notes made during 1915 for which complete information was available.					
1916	2,000,000	1,985,000	2,000,000	15,000	0.756
1917 — There were no issues of notes made during 1917 for which complete information was available.					
1918	1,300,000	1,235,000	1,274,000	39,000	3.158
Total 1914-1918	5,800,000	5,673,500	5,761,500	88,000	1.551
1919	90,000,000	86,900,000	89,325,000	2,425,000	2.791
1920	26,000,000	24,916,380	25,352,090	435,710	1.749
1921, 1922 — There were no issues of notes made during these years for which complete information was available.					
Total 1919-1922	116,000,000	111,816,380	114,677,090	2,860,710	.558
Total 1914-1922	121,800,000	117,489,880	120,438,590	2,948,710	2.510

Stock—There were no issues of stock made during the period 1914-1922, inclusive, for which complete information was available.

known; namely, that the cost of obtaining money is lowest when it is acquired by sale of notes and that the cost increases progressively with the use of bonds and stocks, respectively. The weighted average cost to all utilities for the entire period of money raised by notes was 3.432%; for bond money, 5.907%; and for stock money, 8.488%. The weighted average cost for all classes of securities covered by this study was 5.303%. The last figure, however, must not be taken too seriously, for it is lower than would be the case if complete information on all classes of securities were available. Of the reported issues approximately 69.69% of the total net cash received came from bond sales, 27.42% from sales of notes, and only 2.89% from stock issues. In view of the fact that normally about 25% of total utility financing is by stock issues,[3] it is evident that the composite cost of money would have been appreciably higher than 5.303% if the requisite data pertaining to stock money had been available. Furthermore, the stock issues reported here are preferred rather than common.

[3] *Cf.* Dorau, H. B., "Public Utility Financing, 1919-1925," The Journal of Land & Public Utility Economics, July, 1925, p. 310.

Had data been at hand to compute the cost of obtaining money by common stock issues as well as a due proportion of preferred stock issues, the weighted average cost would unquestionably have been materially higher.

It will also be seen from Table I that the relative volumes of bonds, notes, and stock fluctuated with the general trend of the business cycle. This is evident even after making due allowance for the fact that the issues reported here are only a portion of the total volume of securities offered on the market. There seems to be no inexplicable deviation from the trends established by Professor Mitchell's careful analysis; the amount of bonds floated tended generally to increase in times of depression and business revival and to decrease in times of prosperity. The 200% increase in the par value of bonds floated in 1919 compared with 1918 is explained largely by the removal of stringent war-time restrictions on capital issues. It will be noticed, too, that the cost to the utilities of obtaining bond money was highest in 1920 and 1922 and lowest in 1919, a good year on the whole. The cost of bond money from 1919 to 1922 was somewhat higher than for 1914-1918.

The tendency of public utility managers to resort to short-term note issues in order to avoid long-term borrowing at higher interest rates than will eventually prevail is unmistakably shown. Uncertain conditions prevailing in the money and investment markets in 1917, 1918, and 1919 are reflected in abrupt increases in total amounts of notes offered. But as liquidation began and depression set in, the volume of note issues dropped more than 50% from 1920 to 1921. Contrary to the trend of cost of money raised by bond issues, the years from 1914 to 1918 were the high-cost period for note issues.

The lack of data for stock issues during 1914-1918 vitiates any comparisons with the post-war period. The figures obtainable for the latter period indicate very clearly the well-known tendency of investors to forsake low-yield securities for stock when business prospects seem on the up-grade. The higher cost of money to utilities raising funds in this way, as compared with bonds or notes, is shown in the table.

Cost of Money to Electric Light and Power Companies

Table II shows that of the total amount of electric utility bonds floated from 1914-1922, 26.06% were sold in the period 1914-1918. As might be expected from the uncertain bond and money markets in the earlier period, 55.83% of the total note issues were sold during the war period. With reference to stock, a disproportionately large amount (93.65%) of the total stock issues reported was issued in the post-war period. One factor in this situation was the wider acceptance of junior securities of electric utilities as a result of the educational work carried on in connection with customer ownership campaigns.

It will be noted that the cost of money through the sale of notes, bonds, and stock increases progressively for each type of security from the war period, 1914-1918, to the post-war period, 1919-1922. The lowest cost of obtaining bond money occurred in the year 1917, when the cost was 4.828% of the net cash received by the utilities; while the highest cost occurred in the year 1914, when it amounted to 7.336%, although the cost of bond money in 1922 approximated very closely the high

Table VI. Cost of Obtaining Money to Water Companies in the United States Through Sale of Bonds, Notes, and Stock, January, 1914—December, 1922, Inclusive

Year	Par Value A (Dollars)	Price Received by Company from Bankers B (Dollars)	Bankers' Sales Price C (Dollars)	Bankers' Commission D (Dollars)	Percentage Cost of Money D/B
Bonds					
1914 } There were no issues of bonds made during these years for which complete information was available.					
1915 }					
1916	800,000	720,000	800,000	80,000	11.111
1917	2,005,000	1,743,750	1,859,750	116,000	6.652
1918 There were no issues of bonds made during 1918 for which complete information was available.					
Total 1914-1918	2,805,000	2,463,750	2,659,750	196,000	7.955
1919	580,000	546,800	577,500	30,700	5.614
1920 There were no issues of bonds made during 1920 for which complete information was available.					
1921	5,300,000	5,009,800	5,294,000	284,200	5.673
1922	3,000,000	2,925,000	3,060,000	135,000	4.615
Total 1919-1922	8,880,000	8,481,600	8,931,500	449,900	5.304
Total 1914-1922	11,685,000	10,945,350	11,591,250	645,900	5.901
Notes					
1914	1,000,000	980,000	1,000,000	20,000	2.041
1915 } There were no issues of notes made during these years for which complete information was available.					
1916 }					
1917	400,000	378,000	392,640	14,640	3.873
1918	1,250,000	1,190,625	1,225,000	34,375	2.887
Total 1914-1918	2,650,000	2,548,625	2,617,640	69,015	2.708

point of 1914, the difference being less than 1/10 of 1%. As for the cost of note money, it will be seen that there was very little difference in this cost in the period 1914-1918 as contrasted with the subsequent period, 1919-1922. The cost in 1916 must be discounted somewhat since it represents the flotation of some three-year 6% convertible notes by one company whose financial position was none too strong. The relative stability of the cost of note money during the years 1920-1922 is noteworthy, although the scant data upon which the 1922 figure is calculated destroy somewhat the effectiveness of the comparison.

The cost of stock money shows a decided increase in the post-war period over the war period, amounting approximately to 2½%. The pronounced fluctuation in the cost of stock money during the post-war period is to be accounted for by the fact that the cost for 1920 is predicated upon one issue of about $2,000,000 floated by an eastern utility of presumably poor credit standing, for the cost reached the rather abnormal figure of 16.667%. In view of the fact that the cost of stock money of 11.186% for the year 1922 is based upon 14 distinct issues covering 7 different companies in 5 different states, it is difficult to avoid the conclusion that electric light and power companies at that time confronted a serious situation in obtaining money through the sale of junior securities.

Table VI *(Continued)*. Cost of Obtaining Money to Water Companies in the United States Through Sale of Bonds, Notes, and Stock

Year	Par Value A	Price Received by Company from Bankers B	Bankers' Sales Price C	Bankers' Commission D	Percentage Cost of Money D/B
	(Dollars)	*(Dollars)*	*(Dollars)*	*(Dollars)*	
1919 There were no issues of notes made during 1919 for which complete information was available.					
1920	2,950,000	2,894,625	2,937,625	43,000	1.486
1921, 1922 There were no issues of notes made during these years for which complete information was available.					
Total 1919-1922	2,950,000	2,894,625	2,937,625	43,000	1.486
Total 1914-1922	5,600,000	5,443,250	5,555,265	112,015	2.058
Stock					
1914, 1915, 1916, 1917, 1918 There were no issues of stock made during these years for which complete information was available.					
1919	535,000	502,900	529,650	26,750	5.319
1920	295,000	265,500	295,000	29,500	11.111
1921	220,000	198,000	220,000	22,000	11.111
1922 There were no issues of stock made during 1922 for which complete information was available.					
Total 1919-1922	1,050,000	966,400	1,044,650	78,250	8.097
Total 1914-1922	1,050,000	966,400	1,044,650	78,250	8.097

It will be noted that the cost of bond money for 1919-1922 is about 0.5% higher than for the war period 1914-1918. The yearly fluctuations, however, show such a range of variation that deductions are futile. The cost of note money increased in the post-war period, contrary to the tendency noted in Table I. In this connection, the abrupt decline in industrial activity affecting the money market and particularly short-term loans must not be lost sight of. With reference to the cost of stock money the absence of figures for the years 1915-1916 makes it unwise to draw any general conclusions from the figures as they stand.

Although the high cost of money to electric light and power companies as compared with other types of utilities is in part due to the fact that the statistical basis of the calculation indicates more accurately typical conditions, yet it is to be remembered that the electric light and power industry has been subjected to unusual demands for expansion and accelerated changes in the art of generating and transmitting electricity, both of which are undoubtedly reflected in the higher cost of obtaining money. It must be remembered, also, that the calculation for electric utilities includes numerous small companies which have only a limited market for their output and whose cost of obtaining money tends to increase the weighted average cost.

Cost of Money to Electric Railways

Of the $168,746,400 par value of bond money upon which the cost of money to street railways was based, $112,106,400, or 66.43%, represented bond issues floated in the war period. Approximately the same condition exists with reference to the par value of notes

floated in the two periods. Of the total amount of notes, aggregating $93,459,000, approximately 78.04% were issued in the war period. Since stock issues upon which information is available numbered only two, there is not sufficient data upon which to compare the issues in the different periods.

As in the case of electric light and power companies, the average cost to electric railways of obtaining money through the sale of notes and bonds rose progressively for each type of security from the war period, 1914–1918, to the post-war period, 1919-1922. The lowest cost of bond money occurred in 1916, when it amounted to 3.865%; while the highest cost was attained in 1921, when it was 8.396%. With reference to the cost of note money, the low point was reached in the year 1916, when it was 1.644%; and the high point in the year 1921, when it was 5.850%. Again, the same relative stability of cost exists in favor of note money as contrasted with bond money; the average cost of bond money rose 1.4% from the war period to the post-war period, while note money rose only 1%. It is interesting to note that the average cost of bond money to electric railways for the post-war period was higher than for any other individual group of utilities in the United States, a situation which presumably reflects the critical financial straits of the electric railways.

Table VII. Type of Organization Used by Public Utilities in Local Sales of Preferred Stock

Company Number	Number of Executives Directing Campaign	Number of Clerks Working on Campaign	Average Size of Permanent Stock Selling Organization
1	(*)	(*)	8
2	1	2	None
3	2	(*)	10
4	2	6	None
5	2 (President) (Gen. Supt.)	None	None
6	2	10	None
7	1	2	3
8	2	6	None
9	1 (3d Vice-Pres.)	2	4
10	3	4	10
11	1 (Part time)	1	2
12	1	5	None
13	2	2	None
14	2 (Vice-President)	2 (Average)	3 (Mgr. Stock Selling, Assist. Mgr. Selling Dept.)
15	1	10	8
16	1 Part Time	None	None
17	(*)	(*)	4
18	2	11	None
19	1	4	None
20	3	40	25
21	1	3	9
22	2	10	None
23	2	5	2
24	2	2	2
25	1	2	5
26	1	2	5
27	2	12	None
28	3	4	10
29	1	1	5

(*) No information given.

Cost of Money to Gas Utilities

Comparing the experience of gas utilities with electric light and power and electric railway companies, a reversal of trend is found. Whereas the latter utilities obtained most of their bond and note money in the war period, gas companies issued during 1914-1918 only 21% of the total bonds and 4.76% of the total notes reported. However, 65.35% of the stock issues in the computation were made in the war period. These proportions, however, as well as the cost of money figures, are seriously affected by the lack of complete information for note and stock issues in several years.

The cost of money to gas utilities presents an interesting phenomenon in that the average cost for notes, bonds, and stock declined progressively from the war period to the post-war period, the drop being from 6.803% to 5.688% for bonds, from 3.35% to 2.311% for notes, and from 7.634% to 5.263% for stock. In view of the fact that this decline exists in spite of the fact that the cost of money for the period was

calculated on a greater amount of securities in the post-war period than in the war period, it seems reasonable to conclude that the credit of gas companies improved. It is particularly significant that while gas companies were able to obtain bond money in the latter period at a cost that was 1.2% less than in the war period, electric light and power companies and street railway companies were compelled to pay 1.5% more for bond money, and also that gas companies obtained stock money 2.4% less in the post-war period than in the war period, although electric light and power companies paid 2.4% more. The low cost of bond money occurred in the year 1919, when it amounted to 3.824%; whereas the high cost of bond money occurred in the year 1915, when it was 9.334%. The cost of note money was least in 1921 at 2.114% and was highest in 1915 at 6.452%. The cost of stock money on the three issues included in the calculation shows an extremely wide variation and emphasizes the weight which the various factors previously detailed inject into any calculation of the cost of obtaining money.

The Cost of Money to Telephone Companies

Table V shows that of the $139,765,000 par value of telephone company bonds issued during the entire period under consideration, 9.30% were floated in the war period. Of the total $121,800,000 of notes, 4.76% were issued from 1914 to 1918. There were no stock issues by telephone companies throughout the entire period for which complete information was available, and, hence, no cost of stock money is incorporated in this table.

The cost of obtaining money to telephone companies shows the same general tendencies with reference to bonds as in the case of gas companies, namely, a decline in the cost from the war period to the post-war period. This decline was from 5.419% to 3.993%, or a net decrease of 1.5%. On the other hand, the cost of note money jumped from 1.551% for the war period to 2.558% in the post-war period, an increase of 1%. The low cost of obtaining bond money occurred in the year 1919, when it was 3.155%;

Table VIII. Percentage Distribution of Total Selling Expense in Local Stock Sales Campaigns

Company Number	Salesmen's Commissions	Advertising	Printing and Stationery	Transportation	Postage	Executives' Salaries	Rent	Miscellaneous	Total
230	59.00	12.00	.....	.....	.....	.....	....	29.00	100.00
21	65.00	4.00	.....	10.00	.....	20.00	....	1.00	100.00
24	61.50	8.11	1.80	.....	.....	28.59	....	.....	100.00
229	25.00	28.00	7.00	25.00	3.00	.....	....	12.00	100.00
53	68.70	31.30	.....	.....	.....	.....	....	.....	100.00
231	65.00	11.00	22.00	.....	2.00	.....	....	.....	100.00
76	50.00	.....	.....	.....	.....	.....	....	50.00	100.00
232	36.68	21.28	4.59	17.39	0.06	.....	....	20.00	100.00
86	25.40	49.39	6.30	.....	3.19	10.36	0.11	5.25	100.00
99	48.80	42.80	.....	.....	.....	.....	....	8.40	100.00
233	95.21	4.79	.....	.....	.....	.....	....	.....	100.00
248	10.00	34.00	.....	.....	.....	.....	....	56.00	100.00
121	42.20	34.50	13.10	.....	.....	12.20	....	.....	100.00
129	38.04	23.78	8.15	1.03	1.77	20.32	0.33	6.58	100.00
135	46.00	12.10	16.10	5.00	.....	16.20	....	4.60	100.00
235	3.00	16.00	26.00	28.00	11.00	.....	....	16.00	100.00
157	59.10	17.40	10.10*	8.90	.....	.....	....	4.50	100.00
171	38.12	54.40	2.95	.....	0.63	2.63	0.18	1.09	100.00
236	48.00	13.00	3.00	29.00	2.00	.....	....	5.00	100.00
176	41.00	18.00	17.00	5.00	.....	19.00	....	.....	100.00
214	50.00	.....	.....	.....	.....	.....	....	50.00	100.00
239	58.50	30.90	.....	.....	.....	.....	....	10.60	100.00
237	48.96	12.52	6.52	15.51	.....	.....	....	16.49	100.00

* Includes postage.

the high point was reached in 1914, when it was 5.419%. Note money could be obtained most cheaply in the year 1916, when the cost was 0.756%, and was most expensive in the year 1918, when it was 3.158%.

Cost of Money to Water Companies

For the period 1914-1922, $11,685,000 par value of bonds were issued by water companies in the United States, of which $2,805,000, or 24.01%, were issued in the war period. The par value of notes issued for the entire period aggregated $5,600,000, of which $2,650,000, or 47.32%, were issued in the war period. With reference to the stock of the water companies, there were no issues of stock made during the war period for which complete information was available, while in the post-war period, $1,050,000 par value was floated.

It will be noted that in the case of both bonds and notes the cost of obtaining money was less for water companies in the post-war period than in the war period, following the similar trend for gas and telephone utilities. For bonds this decline was from 7.955% to 5.304%, or a net decline of 2.6%; while for notes the decrease was from 2.708% to 1.486%, a net decrease of 1.3%. The lowest cost of bond money occurred in 1922 and amounted to 4.615%, while the highest cost of bond money was 11.111% in 1916. Note money was cheapest in 1920 at 1.486%

Table IX. Cost of Obtaining Money Through Sales of Preferred Stock Locally

Approx. Date of Offering	Company Number	Description of Securities Sold	Par Value A (Dollars)	Net Amount Realized by Company less Expense of Selling B (Dollars)	Price Received by Company from Buyer C (Dollars)	Selling Expenses D (Dollars)	Percentage Cost of Money D/B
May, 1922	230	6% Cumulative Preferred	73,000	58,863	61,320	2,457	4.17
1919-1923	21	6% Preferred	3,456,660	2,800,617	2,973,447	172,830	6.17
Feb., 1922	229	Preferred	201,200	186,160	201,200	15,040	8.08
July, 1922	53	7% 1st Preferred	331,200	314,350	331,200	16,850	5.36
Jan., 1922	231	7% Cumulative Preferred	22,650	21,650	22,650	1,000	4.62
Dec., 1919	66	7% Cumulative Preferred	90,600	84,502	90,600	6,098	7.22
Jan., 1920, to Aug., 1920	66	7% Cumulative Preferred	66,300	57,937	66,300	8,363	14.43
April, 1921	76	8% Preferred	1,200,000	1,164,000	1,200,000	36,000	3.09
June, 1920, and Aug., 1921	232	8% Cumulative	465,000	438,707	465,000	26,293	5.99
1921	86	7% Cumulative Preferred	2,449,800	2,014,970	2,082,330	67,360	3.34
1922	86	7% Cumulative Preferred	4,424,600	3,861,552	3,926,833	65,281	1.69
1921	99	8% Preferred	3,027,300	2,888,429	3,027,300	138,871	4.81
1922	99	7% Preferred	1,910,100	1,826,518	1,910,100	83,582	4.58
1918	233	7% Preferred	264,800	256,456	264,800	8,344	3.25
May, 1921	234	6% Cumulative Preferred	995,925	690,174	756,903	66,729	9.67
June, 1920, to Aug., 1922	129	7% Non-Par Cumulative Preferred	2,990,200*	2,540,666	2,804,243	263,577	10.37
1921-1922	135	7% Cumulative Preferred	1,354,400	1,204,103	1,280,376	76,273	6.33
May, 1921	199	8% Cumulative Preferred	6,335,400	6,161,177	6,335,400	174,223	2.83
May, 1917	171	7% Preferred	7,000,000	6,650,911	7,000,000	349,089	5.25
Oct., 1922	236	7% Cumulative Preferred	158,400	150,226	158,400	8,174	5.44
Jan., 1921	176	7% Cumulative Preferred	1,220,000	1,172,505	1,220,000	47,495	4.05
1920-1921	214	6% Preferred	121,700	103,445	108,313	4,868	4.71
1921-1922	214	8% Preferred	275,700	264,672	275,700	11,028	4.17
July, 1921	188	7% Cumulative Preferred	3,544,800	3,298,791	3,367,569	68,769	2.08
July, 1919	238	6% Cumulative Preferred	3,093,400	2,474,101	2,536,588	62,487	2.53
Aug., 1919	237	7% Preferred	441,800	423,752	441,800	18,048	4.26
Mar., 1920	239	7% Preferred	500,000	490,765	500,000	9,235	1.88
Oct., 1920	239	7% Preferred	1,000,000	953,000	1,000,000	47,000	4.93
Apr., 1922	239	7% Preferred	500,000	476,755	500,000	23,245	4.88
			47,514,935	43,029,754	44,908,363	1,878,609	4.366
1914-1922	242						$5 per Share
	240						$5 per Share
	245						$5 per Share
	244						$5 per Share
	246						$5 per Share
	241						$5 per Share
	247						$5 per Share
	243						$5 per Share

* 29,902 shares (no par value) redeemable, in case of liquidation, at $100 a share.

and most expensive in 1917 at 3.873%. While the average cost of bond money to water companies was approximately 1.8% higher than the cost of bond money to telephone companies, yet the average cost of note money was approximately 0.5% less for water companies than for telephone companies. In so far as the scant data warrant any comparison, the average cost of stock money to water companies for the period 1914-1922 was 1.3% higher than the cost of stock money to gas companies. Contrariwise, the cost of bond and note money was smaller for water companies than for gas companies over the same period.

Cost of Money Obtained Through Sales of Preferred Stock Locally

While public utilities first resorted to the sales of preferred stock to customers and employees in 1907, the first campaign designed to effect a broad distribution of securities among customers and employees and to raise substantial sums for extending the facilities of the utility was inaugurated in 1914 by the Pacific Gas and Electric Company of California. Almost simultaneously the Denver Gas and Electric Light Company sponsored a similar campaign in the territory which it served. It is rather significant that the initial effort seeking to distribute the junior securities of public utilities among customers and employees should have originated within several years after the concentrated organization and development of commission regulation in the United States. Considering the fact that the initial campaigns were undertaken at a time of industrial depression, their success demonstrated that the sale of securities locally not only afforded an opportunity of developing good-will for the utilities, but furnished an extensive and permanent market from which capital requisite for plant expansion might be drawn at reasonable cost.

In so far as the financial program of the utility is involved, sales of preferred stock locally have furnished a solution reasonable in cost and apparently permanent in character. Experience in the management of local preferred stock campaigns has shown that if the first campaign can be prosecuted successfully, the foundation has been laid for a continuous market for similar securities. Customers or employees that have once been convinced of the investment value of preferred stock of a local utility furnish a nucleus for further sales, and the experience of the administrators of such stock sales universally indicates that subsequent sales can be carried on almost regardless of the season of the year or the tone of the investment market. With changes in business conditions there are recurrent periods in which it is difficult, if not impossible, to market junior securities through bankers except at prohibitive prices. Yet there is no sound reason why a utility with unquestioned earning power and an established record of dividends cannot tap sources of savings existent in every community regardless of untoward developments in the money and investment markets. When it is recalled that the statistical analyses of the investment market demonstrate the handicaps to senior financing in periods of prosperity, it will be seen that a utility that has successfully prosecuted a preferred stock campaign may be fortunately situated with regard to extensions and improvements at a time when they are most likely to be ordered by a public service commission. The utility is in a position not only to raise these

funds frequently at lower cost than would be practicable with the sale of bonds, but it also enjoys the advantage in its financial set-up of increasing the equity money in the property, so that if at any future time it is compelled to resort to the bond market it can do so with the knowledge that in all probability the cost of obtaining money will be appreciably less. The testimony of operators is to the effect that the sales of securities locally, if directed by a competent and efficient personnel, may be carried on in periods of industrial depression as well as in periods of prosperity.[4]

Although frequently a public utility has been confronted with a negative attitude on the part of bankers toward its customer-ownership campaigns, the general attitude of the bankers is distinctly favorable. Statistics relating to the number of the utility's securities held among local investors prove an excellent selling argument for the investment banker in assuring prospective bondholders that the local company enjoys a satisfactory standing in the community served. Moreover, a wide and comprehensive ownership of the local utility's securities seems to be regarded as an unusually satisfactory assurance that the utility is safeguarded against unfair rate agitation and attacks by demagogues seeking to make political capital out of legitimate business profits.

It must be recognized that the existence of this avenue of raising funds through the sale of preferred stock does not mean that any public utility can take advantage of it. Before a utility is in a position to enjoy this relatively low cost of obtaining money, its financial condition must be such that there is little likelihood of foregoing interest payments on funded debt or of passing dividends on stock. The universal testimony of utility operators who have had practical experience with local preferred stock sales is that nothing is so deleterious to the credit of the utility as its inability, even though it be temporary, to satisfy with dividends the legitimate expectations of its stockholders. In brief, the development of this form of distributing junior securities is likely to be confined to those utilities operating in thickly populated territories, with well-established industries and a constantly growing clientele assuring the utility at all times of a stable earning power. Based upon such conditions, the sales of preferred stock locally can be accomplished at relatively lower cost than the same securities could be distributed through

Table X. Cost of Obtaining Money to Public Utilities Through Sales of Preferred Stock Locally and Sales of Bonds by Bankers

Approximate Date of Offering	Number of Company	Cost of Obtaining Money	
		Through Sale of Preferred Stock Locally	Through Sale of Bonds
1919	21	6.17	5.882
July, 1922	53	5.36	6.127
1919	66	7.22	5.307
1-1-20	66	14.43	5.307
4-11-21	76	3.09	8.191
1921	86	3.34	4.451
1922	86	1.69	4.451
1921	99	4.81	5.955
1922	99	4.58	5.955
6-4-20	129	10.37	6.701
1921	135	6.33	8.709
5-23-21	199	2.83	5.333
1-15-21	176	4.05	4.822
1920	214	4.71	11.782
1921	214	4.17	11.782
July, 1921	188	2.08	8.031

[4] Pacific Gas and Electric Company sold $3,785,100 of its preferred stock to customers during the depression of 1915 following the World War. The experience of the Denver Gas and Electric Light Company also demonstrates the feasibility of raising funds at minimum cost even in a period of depression. (Appendix to Report of Committee on Sale of Company's Securities to Customers and Resident Citizens, National Electric Light Association Bulletin, September, 1920, p. 627.)

bankers. However, as the figures submitted herewith show, utilities still in their developmental stages or serving sparsely settled communities, or communities thickly populated with foreigners, have not been able to market their preferred stock locally at such low cost.

Sales of preferred stock locally may be roughly classified into two types, first, the sales of preferred stock to customers and employees, through the efforts of the utility's own personnel, both as to executive management and the actual detailed work of selling the securities, and second, the sales campaign where the administrative work is done by a staff not connected with the utility although the detailed sales work is done by the utility's own employees. In so far as answers to questionnaires sent out to certain public utility companies show a preference for either method, the first type is generally adopted. Table VII indicates approximately the nature of the organization used in these campaigns.

Numerous operating companies in the United States resort to utility management corporations for executive management and advice, and where this arrangement exists the supervision and direction of local preferred stock sales campaigns have been entrusted to the management corporation. It was impossible, however, to obtain from any of these operating companies the desired information.

It will be noted that with 14 out of 23 companies approximately 50% or more of their total expenditures were allotted to salesmen's salaries or commissions. (Table VIII.) This would seem to indicate that the success of such a campaign depends primarily upon the diligence and perseverence with which the personal sales work is conducted. Corroborating evidence supports this conclusion. In recent hearings before a public service commission of one of the eastern states, the manager in charge of the local stock sales campaign testified that while on the average seven shares of stock were held by each customer-owner that had bought stock in the course of a campaign extending over two and a half years, yet it required six or eight calls per customer to attain this average.

The next expenditure of importance incurred in the local stock sales campaign was for advertising, this item appearing in 19 out of 21 tabulations and generally representing a substantial percentage of the total expenditures. The combined advertising and printing and stationery expenses account for practically all of the remaining expenses incurred in the sales campaign. In passing, it may be observed that there is a wide variation in the expenditures for printing and stationery as submitted by the 12 companies listing this item.

Particularly interesting is the fact that although only 8 out of the 23 companies allocate any expense to the item "Executive Salaries," all of these represent large operating companies. It is significant that 4 of these 7 companies show a cost of money materially less than that of the remaining 16 companies.

The cost of obtaining money through the sale of preferred stock to customers has been computed in exactly the same fashion as in the detailed tables discussed previously. The comparative newness of the customer-ownership movement, affecting the number of companies that have adopted this plan as well as the amount of securities in dollars that have been thus distributed, makes possible only tentative conclu-

sions. The same factors conditioning the cost of money previously outlined, such as the credit rating of the company issuing the preferred stock, geographic location, type of market served, and so forth, also apply to Table IX.

The reluctance of some utilities to furnish data makes the table far from adequate. Nevertheless, it may prove helpful in comparing the cost of obtaining money through sales of preferred stock locally with the cost incurred through sales by bankers.

Table IX indicates a comparatively wide variation in the cost of obtaining money through the sale of preferred stock locally, ranging from 1.69% in the case of Company Number 86 to 14.43% in the case of Company Number 66. Although it is risky to draw any categorical conclusions from these relatively scattered data, the figures seem to indicate that the sale of preferred stock locally is of no particular financial benefit compared with sales through bankers where the company is comparatively new and undeveloped or where the territory is sparsely settled and the industries served are in a state of flux. For example, Company Number 66, representing a large utility in the West, operating in a relatively sparsely settled territory, shows a weighted average cost of obtaining money through sales of preferred stock locally of 10.152%, while the same company was able to obtain money through the sale of preferred stock by bankers at a cost of 8.015%. Company Number 129, which operates in a well-established industrial district of the East, but in which the foreign population constitutes an important element, shows a cost of obtaining money through the sale of preferred stock locally of 10.37% as contrasted with the cost of sales through bankers of 9.84%. In this particular instance, however, part of the excess cost involved in the sale of preferred stock locally may be accounted for by the fact that at the time the preferred stock sales were inaugurated, the company, evolved out of merger and consolidation of smaller companies, was comparatively unknown to investors. Nevertheless, there is ample evidence to show that companies with an established credit rating, serving densely populated communities with firmly established industries, may sell preferred stock locally at a cost noticeably lower than that involved in the sale of similar stock through bankers. Particularly is this true where the utility has developed a local market for its stock through successive campaigns over a period of years. An examination of the column "Cost of Obtaining Money" in Table X shows that in 20 out of 29 offerings money was obtained at lower cost through local sales than through the sale of preferred stock by bankers (this latter cost being measured by the weighted average of 8.488% in Table I). Table X shows that 9 companies were actually able to sell their preferred stock locally at lower cost than they could have disposed of senior securities through bankers.

Cost of Money as an Element in the Valuation of Public Utilities

There never has been any question of the right of a public utility enterprise to be reimbursed for the cost incurred in obtaining capital funds devoted to the development and expansion of its plant and business. After the ascertainment of the exact cost of raising the funds used by the utility in its business, the problem then arises as to the method by which this cost may be equitably apportioned between the owners of and investors in the enterprise, and the customers of the utility.

The decisions of the courts and commissions show that there are two distinct ways in which the cost of money may be handled. On the one hand, the expenditures incident to raising money may be regarded as constituting an unavoidable expense in the acquisition of capital funds necessary to initiate and develop the business, and as such properly to be considered in the same class as the cost of professional services rendered by engineers, attorneys, and the administrative organization of the company in connection with the construction and development of the property; in brief, a cost upon which a reasonable amount for interest and profit should be earned. Thus to add the expenditures incurred in getting capital funds to the total investment in the plant and hence to consider it as an integral part of the total sum upon which a fair rate of return should be allowed, is one way in which an equitable arrangement may be effected between the investors and the customers of the utility. The addition of the cost of money to the physical property investment of the utility enlarges the sum of money representing the value of the plant upon which a fair return is to be allowed. The second method of treating the cost of money is gradually to write off the original cost by charging a sufficiently high rate to the customers immediately following the acquisition of the capital funds invested in the business, so that over the period of years for which the securities run, the entire cost will be written off through operating expenses. For example, a cost of $100,000 incurred in the sale of a $2,000,000 bond issue, running for twenty years, may be extinguished for a public utility enterprise having five thousand customers by equal annual payments during the life of the bonds of $1 per customer a year, or by an increase of $5000 per annum in the ordinary rates over and above the rates necessary to cover operating expenses, including depreciation and reasonable amounts for interest and profits. When amortized in this manner, the cost of obtaining money becomes only a temporary charge against the customers, but is shifted from all of the customers of a plant to only that part of them attached during the period for which the securities run. The total cost of obtaining money is thus extinguished at the expense of those people who may be customers during the amortization period.

Before attempting to reach any conclusions concerning the proper method of handling the cost of money in determining the fair value of a public utility, the real nature of the item must be understood: a thorough appreciation of the significance of this term is especially needed where the discussion for and against capitalization or amortization respectively has become so pronounced.[1] At the outset it should be noted that the dispute as to the method of handling the cost of obtaining money is in part due to

[1] While perhaps more opposite words than "amortize" and "capitalize" might be used here, the succinctness of these words facilitates clarity of expression and hence they will be used throughout this discussion.

a confusing nomenclature growing out of the careless phraseology of courts, commissions, lawyers and public utility operators. What is unquestionably the cost of money has been variously called "cost of money," "cost of financing," "brokerage" and "discount." However, an analysis of the foregoing terms discloses real differences between them. The "cost of financing" is a general term and embraces two distinct elements, (a) the mechanical cost of financing, including therein all costs of preparing, printing, engraving, registering, and distributing security issues, whether stock, bonds or notes as well as the cost of recording mortgages and other necessary papers, trustees' fees and expenses, etc., and (b) the cost of money realized from the sale of such securities, whether such cost be incurred in the form of direct expenses paid by the company—where securities are sold direct by the company to the investor — or as sums paid to bankers for their services in effecting the sale of the company's securities. Thus it will be perceived that the "cost of money" is not so inclusive a term as "cost of financing," that "brokerage" is synonymous with "cost of money" as the latter term has just been defined, and that "discount" is distinctly different from any of the foregoing items.

Distinction Between Cost of Money or Brokerage and Discount

In view of the fact that much of the muddled terminology centers about brokerage and discount it is relevant to distinguish briefly between these two terms. Discount represents the difference between the par value of the securities and the price paid therefor by investors. Discount represents an adjustment of the stated rate of return on securities to current yields prevailing in the investment market at the time the security is offered to the public. The difference between the par value of a bond and the price paid for it by the investor represents an adjustment of interest which, when averaged over the life of the bond—in conjunction with the interest periodically paid by the company—gives the investor an average yield approximating the current yield for securities of the character in question. Thus, for example, the utility may be able to sell to an investment banker a ten-year first mortgage seven per cent. bond at a price which will enable the latter to offer this bond to the public at par. In this event there is no bond discount as the term has heretofore been defined. On the other hand, the utility may sell a six per cent. ten-year bond to the bankers at a price which will enable them to offer it to the investing public at 92.8938, which represents a seven per cent. basis when interest is paid semi-annually. In either event the bondholder buys a security which, if he holds it until maturity, will show him a yield of seven per cent. per annum on the money which he has invested. In the first case, he receives seven per cent. in each and every year, while in the second case he receives in advance the equivalent of something over one-half of one per cent. per annum for the entire period (representing the difference between the price which he pays for the bond, *viz.* 92.8938, and par) and thereafter interest at the rate of six per cent. per annum upon the face amount of the bond, which is equivalent to 6.46 per cent. per annum on the cash price which he paid for the bond. It is clear from this illustration that a corporation about to issue securities has at least in theory the choice between the issue of a security carrying a rate of interest sufficiently high to enable it to be sold to the ultimate investor at par, or, on the other hand, of issuing a

security of the same characteristics, except that its rate of interest is lower, in consequence of which it can be sold to the ultimate investor only at a discount.

As distinguished from discount, the cost of money or brokerage represents the difference between the price at which securities are sold to the banker by the utility and the price at which the banker in turn sells them to the investing public. It includes a reasonable compensation for the banker's services in marketing the securities and forwarding the funds yielded to the utility; the services and expenses of examination, negotiation, advertising and selling through all of the various stages until the sale to the final investor is effected.

Factors Responsible for Amortization of Cost of Money

There are seventeen public service commissions in favor of amortizing the cost of money.[2] Largely as the result of regarding brokerage and discount as connoting the same class of costs to a public utility, some commissions view the cost of money as "an advance payment of interest and not to be treated as a capital investment," declaring that "it should be made up out of income by the creation of a sinking fund reserve sufficient to cover the item by the time the bonds mature."[3] Indeed, this erroneous conception of the cost of money as an item synonymous with discount not only pervades the decisions of courts and commissions but has been fostered by the authors of legal texts dealing with the jurisprudence of public utilities,[4] by the National Association of Railway and Utilities Commissioners,[5] and, curiously enough, by public accountants. Generally, the members of the accounting profession have been very definitely against the capitalization of brokerage charges. Reference to accounting textbooks and the various classification of accounts adopted by the different public service commissions shows first, an unmistakable tendency to treat brokerage and discount as identical items, and, second, an almost uniform adherence to the practice of amortizing over the life of the securities any brokerage charges incident to their sale.[6] While a misconception of the significance of two terms meaning markedly different things is hardly to be considered a sound argument for amortizing the cost of money, yet due recognition must be given to this misconception as an outstanding cause of the fallacious treatment by many courts and public service commissions of the cost of money as an element in the valuation of a public utility. However, it should be recognized that inasmuch as discount involves an adjustment of the stated rate of return on securities to current yields prevailing in the investment market and does *not* represent any payments made by the utility for services rendered to it; and since the discount on securities is applicable only to the period for which the securities run and hence could not be capitalized without artificially inflating the capital account, and since ordinarily the amount of this discount, except in excessively speculative enterprises never reaches large proportions—discount may well be amortized out of operating ex-

[2] A list of the states whose commissions have decided that the cost of money should be amortized out of operating revenues follows: Colorado, Idaho, Illinois, Indiana, Kansas, Maine, Maryland, Massachusetts, Missouri, Montana, New Jersey, New York, Ohio, Oregon, Washington, Wisconsin and Utah.

[3] Lincoln v. Lincoln Water & Light Co., P. U. R. 1917, B 1.

[4] WHITTEN: VALUATION OF PUBLIC SERVICE CORPORATIONS, p. 268.

[5] Proceedings for 1920—Appendix 1, p. 30.

[6] HAYES: PUBLIC UTILITIES—THEIR COST NEW AND DEPRECIATION—*In re* Terminal Taxicab Co., P. U. R. 1915, B 546; Campbell v. Hood River Gas & Electric Co., P. U. R. 1915, D 855; *Re* Cincinnati Gas & Electric Co., P. U. R. 1916, F 416.

penses without unduly burdening the consumer of the utility during the life of the securities and without depriving the stockholders of any funds which they have actually contributed to the enterprise.

Certain considerations of policy have also influenced the judgment of commissions confronted with the problem of handling the item of brokerage. Admitting that the cost of getting money represents a legitimate part of the cost of the property, the statement is encountered "that it is wiser to allow a rate of return higher than would otherwise have been assigned and to require that a portion of such return be turned into a fund to amortize such losses."[7] On the other hand, certain commissions deluded by notions of public policy maintain that the consumers should not be burdened with a rate of return on imaginary values representing the bond discount suffered by the utility due to the stockholders' financial inability to furnish the needed capital for improvements and betterments through stock subscription.[8] Again, some commissions refuse to permit the cost of money to be capitalized due to the difficulties that might ensue were this policy pursued in the case of refunding bond issues, for it is claimed that the capitalization of the cost of money on refunding issues would continually add sums to the total capital account of the utility until this account might be entirely out of proportion to the fair value of the property.[9]

Another reason for the insistence by legal tribunals that the cost of money cannot be regarded as a contribution to the capital investment of the utility is to be found in the carelessness displayed by the utilities themselves in the preparation and presentation of their cases. An examination of the transcripts of record too frequently divulges the failure of the utility to base its claim for cost of money upon the actual expenses incurred in the sale of its securities. The failure to provide concrete evidence of such expenditures furnishes the courts and commissions with adequate provocation for denying the validity of the claim altogether. Thus, in a comparatively recent decision bearing upon this question the Supreme Court of the United States categorically refused to recognize the cost of money as an element to be included in the investment of a public utility property, since the evidence submitted thereon savored of being hypothetical and conjectural and of not being positively grounded on the experience of the utility.[10]

While an imposing catalog of reasons resorted to by courts and commissions in justification of amortizing the cost of money might be adduced, it is doubtful whether such an array would add anything of significance. A careful reading of the decisions in which the item of brokerage has been amortized almost invariably discloses the fact that the tribunal has not perceived the essential differences between brokerage and discount. As will appear subsequently, to imply that the amortization of brokerage lightens the rate-burden of the utility's customers is to fly in the face of the facts. To state that the capitalization of brokerage gives an unwarranted advantage to the utility of comparatively weak credit by enabling it to aggrandize its investment [11] and thus secure a differential advantage over the utility in a strong credit position, is to assert that the credit status of the utility is the predominant

[7] Lima v. Lima Telegraph & Telephone Co., P. U. R. 1916. E 670.

[8] *Re* Citizens Telephone Co., P. U. R. 1916, B 352.

[9] *Re* Wisconsin-Minnesota Light & Power Co., P. U. R. 1920, D 428.

[10] Galveston Electric Co. v. Galveston, P. U. R. 1922, D 159, 258 U. S. 388.

and outstanding factor determining its cost of money, and to ignore conditions existing in the money and investment markets, the kind of security issued, the general reputation among investors of the type of utility seeking capital, the location of the enterprise, the extent to which the territory served by the utility has been developed and the character and extent of local and state regulation and control, as very positive and pertinent factors affecting the amount of brokerage. To amortize the cost of money because of the possibility of duplicating the addition of the brokerage item to the utility's total investment whenever a refunding security is issued is to conjure an argument out of a pretense, for the exercise of the supervisory and administrative powers over the issuance of securities by public utility corporations granted to most public service commissions, would effectively prevent any such excessive capitalization.

Economic Justification of Brokerage

Much of the misconception concerning the cost of money arises through a failure to appreciate the nature of the transaction by which bankers are used as intermediaries in the distribution of securities. It is erroneously regarded as essentially different from a transaction by which the original owners of a public utility enterprise, living in the community in which the enterprise is developed, contribute the initial capital for its organization and development. Where the citizens of a community are desirous of having a public utility supply them with electricity, water or gas, they would immediately be confronted by the difficulties of raising sufficient capital to build the plant and set it in operation. If the money is raised by capital stock, an advertising and selling campaign would be necessary to persuade the investors of the particular community to subscribe to the stock of the proposed enterprise. If the stock were sold at par directly by the utility itself, with no bankers or any other intermediary serving as an agent in the distribution of the securities to the public except perhaps the employees of the new company, there would still be the cost of raising money by the sale of preferred and common stock equivalent to the total expenditures incurred in marketing the stock to the local investors, and represented by sales commissions, advertising, printing and stationery, transportation, postage, etc. The cost of selling these securities locally is to be measured by the experience of other utilities in the local distribution of their stock through customer ownership campaigns, and will range from two to fourteen per cent. of the net cash received by the utility. A fair determination of the actual money invested in such a property could hardly recognize less than the total amount of money contributed by the stockholders, although the net cash per share invested in tangible property would be the balance left after the legitimate selling expenses had been deducted from par.

Essentially, there is no difference between the foregoing situation and one where the utility hires an investment banker whose business it is to sell securities, who has an organization and trained staff, the technical knowledge, the banking connections and the clientele to do the thing for it. Viewing the matter from the standpoint of cost alone, much is to be said in favor of distributing securities through bankers. A wide and varied experience in the sale of similar securities, the gradual development extending over a period of years of an

[11] Reno Power, Light & Water Co. v. Public Service Commission of Nevada, P. U. R. 1923, E 485, 298 Fed. 790 (D. C.).

established clientele, familiarity with the current preferences and dislikes of investors, an intimate knowledge of the availability of funds in the money and investment markets, and the flexibility of underwriting syndicates in adapting themselves to unforeseen and untoward events, qualify the banker to distribute securities rapidly and at a minimum cost. Indeed, the figures afford substantial evidence that enterprises lacking established earning power and operating in comparatively undeveloped territories can frequently obtain their funds cheaper through bankers than through direct sales to the public.

The repeated assertion that the cost of obtaining money can be eliminated or avoided by increasing the face interest rate of the security to meet prevailing market conditions ignores the conditions confronting corporations seeking to raise money through the sale of securities. Arbitrarily to increase the face interest rate of the security might avoid bond or stock discount as the term is herein applied, but it does not warrant an assumption that the sale and distribution of securities, whether conducted by the utility itself or by bankers, can be prosecuted without expense. The cost of obtaining money invariably represents a legitimate expenditure for services that have actually been rendered in the sale and distribution of securities. Indeed, the attempt to eliminate bond discount and the cost of obtaining money by raising the face interest rate of the securities in question might actually result in the utility experiencing unwonted difficulty in marketing its securities or in stressing the two factors which were sought to be eliminated. The problem is one involving conditions somewhat more complicated than a simple arithmetical computation. For example, the mere fact that a utility recently organized in a relatively new territory was attempting to market its bonds bearing a face interest rate of eight or nine per cent. when the current rate then prevailing in the investment market was but seven per cent. would immediately arouse the suspicion of investors. Investors might well look askance at a security whose face interest rate was so far out of line with current rates of similar securities, and might regard the attempt to dispose of such a security as a complete confession of lack of credit on the part of the utility or of some inherent defect in its business or financial program. The effect would be much the same as that produced by a merchant possessing a supposedly A-1 line of credit hawking his promissory notes bearing an interest rate of ten per cent. about a market where the prevailing cost of money was only six per cent. Conservative investors seldom expect to get something for nothing, particularly in the matter of interest rates, and the mere offer of a security bearing a face rate of interest disproportionately out of line with the current yields would in all probability prove such a deterrent to prospective purchasers as to hinder effectually the distribution of the security. With this situation confronting either the utility or the banker, it is evident that the amount of time and effort required to complete the sale of the security will be tremendously enhanced—the expenses incident to administration, sales and advertising will undoubtedly increase—and this advanced cost of selling will be reflected in a higher cost of obtaining money.

Arguments for Capitalizing Cost of Money

There are sound economic reasons for capitalizing the cost of money.[12] From the customer's viewpoint there is something to be said in favor of the method by

which the amount expended in acquiring funds is added to the value of the plant upon which a fair return is to be allowed. Even though by such a method the cost of money becomes a permanent charge upon the customer, this charge will be relatively low compared with that which the customers of the first few years following the inauguration of the enterprise will have to bear in case the cost is written off through operating expenses. Moreover, the amortization method of handling the cost of money accentuates the financial burden which the customers of the utility during the earlier years have to bear, not alone because during this period the customers are fewer in number, but also because it is likely that necessary changes in plant, personnel, and services dictated by cumulative experience with the community served, render inevitable higher rates during the inaugural stages of the enterprise.

From the standpoint of the stockholder cogent reasons exist for including the cost of money to a public utility corporation in the investment upon which a fair rate of return is to be calculated. For it must be remembered that the value of most public utility properties is represented both by bonds and by stocks. The bonds have prior claim on the earnings while the stockholders take what is left after all of the preferred claims have been met. The amount deducted from the so-called fair value of the property in case the cost of money is written off through operating expenses would, therefore, have to come out of the stockholder's share alone instead of being distributed over the entire value of the property as it should be. For the purpose of illustrating the effect which the failure to capitalize the cost of money to a public utility would have upon the equity of the stockholders, the calculations set forth in the following table were made, the relationship existing between the money raised by bonds and the money raised by stock being predicated upon the interim report of the Sub-committee on Electric Securities of the Investment Bankers Association, which stated that money raised by the sale of bonds should not exceed fifty to sixty per cent. of the total value of the utility's property, including intangibles, and that the remainder, representing the equity money, should consist of equal parts of preferred stock and common stock. It is assumed that a public utility enterprise is to be organized with a total investment of $10,000,000, over and above the cost of obtaining that capital, the money to be raised by the sale of bonds and stocks according to the proportions just described. The cost-of-money figures represent the actual cost of money on bonds or stock to public utilities in the United States as determined by a computation covering a nine-year period from 1914 to 1922, inclusive, embracing 550 public utility companies of all types and involving security issues aggregating $1,600,000,000 par value.[13] To simplify the illustration, it has been assumed that the securities without exception will be sold to the ultimate investor at par so that the investor's money contribution to the physical plant of the utility will in fact exactly equal the par value of the securities outstanding in every case.

With the foregoing factors affecting this calculation in mind, the amount of bonds which would have to be issued to

[12] The following public service commissions have at some time declared in favor of adding the cost of money to the capital investment of a public utility: District of Columbia, Maine, Missouri, Nebraska, Pennsylvania and Utah.

[13] See earlier articles by the author entitled *Cost of Money to Public Utilities in United States, 1914 to 1922, Inclusive.*—Jour. Land and Public Utility Economics, Jan., 1926.

TABLE XI
SHOWING EFFECT OF STOCKHOLDERS' INVESTMENT IF COST OF MONEY IS EXCLUDED FROM FAIR VALUE OF PUBLIC UTILITY WITH A TOTAL INVESTMENT OF $10,000,000*

	Bonds	Stock		Total Par Value of Common Stock	Equity for Common Stock Assuming no Allowance for Cost of Financing in Valuation Made on Original Cost Basis	Percentage of Par Value of Common Stock Represented by Allowed Value	Percentage of Par Value of Common Stockholder not Represented by Allowed Value
		Preferred	Common				
Example A Assuming investment to be represented by cost of money.*	60.000% 5.907%	20.000% 8.488%	20.000% 12.00%	$2,240,000	$1,475,820	65.88	34.12
Example B Assuming investment to be represented by cost of money.	60.000% 6.324%	20.000% 8.532%	20.000% 12.000%	2,240,000	1,449,920	64.73	35.27
Example C Assuming investment to be represented by cost of money.	60.000% 5.599%	20.000% 7.203%	20.000% 12.000%	2,240,000	1,520,000	67.86	32.14
Example D Assuming investment to be represented by cost of money.	60.000% 5.920%	20.000% 6.791%	20.000% 12.000%	2,240,000	1,508,980	67.37	32.63
Example A[1] Assuming investment to be represented by cost of money.	50.000% 5.907%	25.000% 8.488%	25.000% 15.000%	2,875,000	1,992,450	69.30	30.70
Example B[1] Assuming investment to be represented by cost of money.	50.000% 6.324%	25.000% 8.532%	25.000% 15.000%	2,875,000	1,970,500	68.54	31.46
Example C[1] Assuming investment to be represented by cost of money.	50.000% 5.599%	25.000% 7.203%	25.000% 15.000%	2,875,000	2,039,975	70.96	29.04
Example D[1] Assuming investment to be represented by cost of money.	50.000% 5.920%	25.000% 6.791%	25.000% 15.000%	2,875,000	2,034,225	70.76	29.24

*The cost of money raised through the sale of bonds, preferred and common stock varies according to the actual cost incurred by each type of utility. Examples A and A[1] are based upon the average cost of money to all public utilities in United States from 1914 to 1922, as determined in the calculation previously referred to, B and B[1] upon the cost of money to electric light and power companies, C and C[1] street railway companies, and D and D[1], gas companies, for the same period.

the investors at par to yield $6,000,000 in cash, as illustrated in Example A, would be determined by the cost of money applied in this instance, or 5.90 per cent. In brief, the total par value of bonds that would have to be sold to net the company $6,000,000 subsequently to be invested in its plant, would exceed $6,000,000 by the total expenditures made in obtaining the money. This amounts to $354,420, so that the utility would have to sell $6,354,420 of bonds in order to receive net $6,000,000. With preferred stock exactly the same method of calculation is applied and the result in this case, with preferred stock money costing on the average 8.5 per cent., shows that $2,169,760 of preferred stock would have to be sold to the investor at par in order to net the company $2,000,000. By the same process the amount of common stock that would have to be issued with a cost of money of twelve per cent. to net the company $2,000,000 is shown to be $2,240,000.[14] Consequently, $10,764,180 of securities will have to be issued at par to the ultimate investor to yield to the company $10,000,000 to invest in its property after the cost of money has been defrayed.

The relationship between the cost of money expressed in dollars and the equity which the common stockholders now possess in the $10,000,000 property is as follows: The total cash received by the company from the bankers is $10,000,000 and the total par value of the bonds and preferred stock outstanding, representing dollar for dollar the money contributed by the ultimate investor, is $8,524,180. The balance, representing the equity for the common stock, assuming that no allowance is made for the cost of money in any valuation of the public utility's property immediately following the construction of the property, amounts to $1,475,820. While the common stockholder has paid $2,240,000 in cash for this stock, yet if the cost of this money is excluded from the total value of the utility's property, then the equity in the property, representing the allowed part of the rate base belonging to the stockholder, would amount to $764,180 less than the actual amount of money which he has contributed to the enterprise. If the cost of money is not regarded as an element of value in the public utility's property, approximately 34.12 per cent. of the common stock equity has immediately disappeared. In brief, the percentage of par value of the common stock not represented by an allowed value, when the cost of money is excluded from the investment value of a utility's property, ranges from thirty to thirty-five per cent.

It is to be noted particularly that the basis of all of the foregoing calculations with the exception of common stock, is the actual cost of money as revealed in the investigation previously referred to.

The preceding calculation definitely demonstrates that the cost of money is something which the security holders have generally contributed to the enterprises. The need for recognizing cost of money as an essential part of the value of any public utility enterprise is further accentuated by the fact that utilities are continually seeking to attract capital with which to finance the improvements and extensions demanded by their customers. Should stockholders find that through the arbitrary refusal of public service commissions and the

[14] It is believed that allowances of 12 and 15 per cent. for the cost of obtaining money through the sale of common stock is not excessive, especially in view of the fact that in a decision of the New Hampshire Public Service Commission an allowance of $10 a share to a banking house for selling a 7 per cent. preferred stock at par was held to be reasonable. *Re* Utilities Power Company, P. U. R. 1923, A p. 338.

courts to recognize legitimate expenditures incurred in obtaining money for the utility as a part of the money invested in the property, thirty-five per cent. of their investment disappears immediately after the purchase of their stock, then the keystone in the structure of finance, representing the investment in common stock, becomes practically impossible. No investor is likely to invest in a business enterprise where his profits are not only regulated, but where at the outset he must face a loss of thirty-five per cent. of his investment because the regulatory bodies have decided that the cost of money must be amortized through operating expenses rather than be added to the property investment.

The soundness of the reasoning by which public utility commissions justify the amortization of the cost of money out of operating expenses and refuse to permit it to be included in the investment in the property diminishes when it is realized that one of the standard measures adopted by commissions for determining a fair rate of return sufficient to attract capital into the industry is the cost of money, or, as it is generally phrased, "the cost of attracting capital," in the open market. In the mechanics of fixing rates for public utility enterprises, the value of the property is generally regarded as constituting the base upon which the rates are to be fixed—this value representing a finding by some government tribunal that there has been and is as of the date of the valuation a certain amount of money invested in the property that is used and useful and dedicated to the public service. A fair rate of return is the interest which when applied to the money invested in the property produces the return which, in the judgment of the regulatory body and the owners of the property, including its creditors or bondholders, it should be allowed to earn. The rate of return measures the sum which the public utility is allowed to collect from the public for the service rendered. The purpose of determining the fair value of a public utility is to give to the security holder and particularly to the owners of the property, namely preferred and common stockholders, some estimate of the actual money investment in back of their security. As a matter of fact, the reputable investment banker is extremely careful before he sells any utility bonds or stock to his customers to ascertain whether there is a dollar-for-dollar investment value in back of the securities marketed, for he realizes the precariousness of his position if he is detected selling securities which will not at all times be recognized as having a right to a return. It is sheer casuistry to say that the amortization of the cost of money adequately protects the investment of the bondholder and stockholder. Unfortunately under our capitalistic regime the investor or owner measures the adequacy of his protection by whether or not he has returned to him at the maturity of his investment the same dollars of purchasing power that he has originally contributed to the enterprise. Blandly to assure him at the outset that having paid so much money for his bonds or stock his investment will shrink from thirty to thirty-five per cent. due to the failure of the public service commission or courts to recognize the legitimacy of including the cost of obtaining money in the total investment, is a method par excellence for keeping capital out of the industry.

While bearing traces of confusion between brokerage and discount, the practical necessity of allowing the cost of money to be capitalized is enunciated in the leading decision [15] in Pennsylvania,

in which Judge Kephart laid down the fundamental principles of valuation, which have since been repeatedly affirmed:

"Concerning the item of brokerage, . . . utilities, like other companies, are not able to make their financial arrangements without allowing such discount. The difference between the amounts derived from the sales of its bonds and the amount which the company must eventually pay on the bonds has been regarded as a part of capital charge for construction. While corporations should not be permitted to capitalize their lack of credit, still, where bonds are sold at a reasonable discount and bear a fair rate of interest, such discount should be allowed. What is a fair discount depends upon the condition of the money market and the ability of the organizers to attract capital to the project. It is a well-known fact that the great majority of companies are started without all the available cash necessary to complete the undertaking. This country would not have reached its great stage of industrial development if it had been the rule that all capital must be procured in advance by full-paid stock subscriptions. If a legal rate of return was all that was offered, the investor could very well answer that, without risk and with a safe margin of value, money could be loaned on lands and buildings at this rate of return. When solicited to invest in a new project, with the uncertainty of success before him, the investor demands a return commensurate with the risk involved, and that must be something more than a legal-rate investment. If the venture is a failure, the investor is compelled to take his loss without any hope of recoupment; but it is equally unfair to require him to suffer all the loss if the enterprise fails, and to deprive him of the chance of additional gain if the venture is a successful one. Moreover, the company should be allowed the expense necessary to give a reasonable discount on bonds and . . . such discount should be allowed as a capital charge. To hold that only the cash received may be considered in a rate-making value would not only deprive the company of property, but would deprive the investor of property; it would drive from the field of legitimate banking the securities of hundreds of utility companies within the state. Many of these securities are held in good faith by banks throughout the commonwealth. We cannot view the present success of utility companies as the medium through which this question must be judged. It is necessary to go back to their formative period, when these securities were sold, and from that viewpoint examine the various critical stages through which the utility company has passed. It has only been through inventive genius that any utility concerns have become successful ventures. The appellant should be allowed a certain per cent. for brokerage or discount. There was sufficient evidence before the Commission to determine the fair amount, and while the Company, in undertaking to allow exorbitant amounts, fell into error, and such issues were clearly unreasonable and grossly in excess of any fair demand, still we cannot deny to the innocent stock and bond holder the justice of securing a reasonable allowance for brokerage as a capital charge."

[15] Ben Avon v. Ohio Valley Water Co., P. U. R. 1918, A 161, 68 Pa. Super. 561.

Upon appeal this case was taken to the Supreme Court of Pennsylvania and the decision of the Superior Court was upheld on this point. The Pennsylvania Supreme Court [16] went so far as to say that the inability to show the actual expenses incurred in the sale of bonds afforded no adequate reason for excluding this item in the determination of the fair value of the property, since "Common experience shows, however, the bonds could not have been marketed without paying brokerage either to the person who sold them, or by reduction from par value on their sale to a purchaser, or both." That the stress laid by the Pennsylvania Supreme Court upon the justice of capitalizing cost of obtaining money is based upon the practical experience of public utility properties is shown in the following excerpt from its opinion:

> "The last of the five questions is whether or not brokerage on the sale of bonds of the water company should have been allowed? The Commission says that sufficient evidence of actual payment thereof was not produced, but everybody knows that expenses are necessarily incurred in such sales; even our Victory and Liberty Bonds could not be marketed except at a very heavy cost. There is no legal principle standing in the way of making a proper allowance therefor, and it is difficult to understand the basis of the mistake of those who hold it should not be allowed. The matter is in the same situation as if it had placed its bonds in the hands of an agent, with direction to sell them and apply the proceeds, as needed, for construction expenses. These bonds were all that the water company had to apply in payment of the plant, and the use thereof for this purpose, in the final analysis, constituted simply an exchange of one for the other. If it had been remembered that money itself has no value except that given to it by reason of the fact that other commodities can be obtained in exchange for it, the error of refusing to allow this as a principal expense would probably not have been made.
>
> "In the instant case the evidence would seem to justify the conclusion that expenses were paid in selling the bonds, but neither the exact purpose of the payments nor the amount thereof clearly appears. Common experience shows, however, the bonds could not have been marketed without paying brokerage either to the person who sold them, or by reduction from par value on their sale to a purchaser, or both; especially in the case of an investment, somewhat problematical as to safety, as was the fact with regard to all these utilities in the beginning."

It is submitted that the question of whether the cost of obtaining money is being amortized by the company is immaterial in determining whether the cost of money should be included as an item in the fair value of the property. If the principle is adhered to that anything which is amortized should be excluded from the valuation, the entire theory upon which valuations are universally made would be so greatly impaired as to cause their abandonment as a means of determining the fair value of the property of a public utility. It is universally admitted that interest during construction is an element of the cost of the property and should be included as a part of its fair value. It is also universally admitted that engineering is a

[16] Ben Avon v. Ohio Valley Water Co., P. U. R. 1921, E 471, 271 Pa. 346, 114 Atl. 369.

proper element in the cost of constructing a property and should be included as a part of its value. But both interest during construction and engineering—together with other elements of cost of a similar nature—are amortized over the life of the various elements of property, in which these items represent a part of the cost, through a reserve for renewals and replacements, sometimes referred to as a reserve for depreciation. The capital which is raised for the purchase of labor and materials, of providing engineering and meeting interest during construction, all passes out of existence with the physical property. In exactly the same way the corporate organization of most enterprises ceases at some time to be suitable for the conditions then existing. The utility outgrows its financial structure and extensive refinancing is, therefore, necessary. This is an element of obsolescence exactly similar in nature to the obsolescence of physical property and must be so regarded.

It requires no minute scrutiny to ascertain the fact that the amount of money expended by a utility in obtaining capital funds is nothing more than a remuneration paid to the bankers for their specialized services. The cost of money, therefore, is directly comparable to the sum paid indirectly to wholesalers, retailers and manufacturers in the purchase of tangible property and equipment, for in every item of physical property bought by a utility, a certain amount of the total purchase price goes toward defraying the costs of sale and distribution thereof, and hence represents specific payments to the individuals or corporations performing such services. To deny the validity of including the cost of money—representing as it does a legitimate item of expenditure incurred in getting requisite funds—as a proper and indispensable element in the cost of constructing and developing every public utility property, is equivalent to a denial that the purchase price paid for tangible property and equipment represents the true original value of the physical property investment. Money used for plant construction and expansion is a commodity and must be bid for in a competitive market, and the time and energy incident to its acquisition and placement in the hands of the utility should be duly compensated. Actual expenditures made by certain utilities in selling their securities directly to the public averages approximately 4.5 per cent. of the net cash received by the utility. Consequently, when a local investor buys a share of stock at par paying $100 therefor, it means that of this total sum $4.50 on the average has been spent in getting his $100, and the remaining $95.50 has been honestly and prudently expended in the property. After this cost of obtaining money has been defrayed, there would be little question in any one's mind that the total value of the property was the par value of the stock which has been paid in by the local investor. As previously suggested, there is no essential difference between this situation and one where the utility hires an investment banker whose business it is to sell securities to do the thing for it. In both instances the utility is compelled to pay the cost of obtaining money, and there is no justification for regarding the intervention of investment bankers between the utility and the investing public as a reason for declining to include the amount of money expended in obtaining capital funds as a part of the fair value of the property.